ALASKA SEALIFE CENTER

Interim Performance Report to NMFS

I. Grant Number: NOAA Award NA06FX0478

II. Project Title: Sea Lion Research

III. Grantee: Alaska SeaLife Center

IV. Project Dates: October 1, 2000 through December 31, 2001

V. Reporting Period: September 30, 2001 through December 31, 2001

VI. Summary of progress

Task 1 – Long-term monitoring of the Steller sea lion rookery on Chiswell Island using remotely controlled video cameras.

A. Objective: The overall objective is to continue to assess Steller sea lions at a rookery in the Gulf of Alaska.

B. Progress: We continued to monitor Chiswell Island and Seal Rocks for Steller sea lion activity from October 1 through December 31 via remotely controlled cameras. Mary's Bay and Cape Resurrection haulouts were also monitored occasionally during that time period by local tour vessel operators and ASLC personnel. Censuses were recorded daily along with brand and tag resightings when observed.

The report for the sea lion counts from 2000 to 2001 is currently being completed. The data from the maternal investment study are being analyzed to determine how that study will proceed in the 2002 breeding season.

C. No changes have been made to the original schedule. Work has been accomplished as anticipated.

Task 2 – Nutritional studies on captive Steller sea lions.

A. Objective: The overall objective of the nutritional studies is to assess changes in the body condition of sea lions on a mixed-species diet, that is changed at set intervals to allow for a variety of physical and physiological measurements.

B. Progress: The feeding regime study continued during this period with diet shifts conducted for two of the sea lions at the regular four month intervals. Blood samples were taken monthly during this period. Some smaller pollock were obtained from a new batch, however more are still needed. Plans to obtain sandlance, capelin, and smaller pollock by fishing or through commercial sources are being made.

C. No problems have been encountered or changes made to the original schedule. Work has been accomplished as anticipated.

Task 3 – Endocrinology and immunology studies on captive and free-ranging Steller sea lions.

A. Objective: The overall goal of this study will be to assess the use of endocrine and immune profiles as indicators of metabolic condition and general health in both captive and free-ranging Steller sea lions.

B. Progress: Steller sea lion blood samples were collected by Alaska Department of Fish and Game (ADF&G) and National Marine Fisheries Service (NMFS) during the summer field seasons of 2000 and 2001. In addition, approximately 350 blood samples were collected on a cruise to the Kuril Islands in 2001. All hormone assays were completed in Dr. Shannon Atkinson's laboratory at the ASLC. All blood samples, once in possession, were kept frozen at approximately -80°C until assayed.

Data analysis is currently taking place and the preliminary results were presented at the 14th Biennial Conference on the Biology of Marine Mammals.

C. No problems have been encountered or changes made to the original schedule. Work has been accomplished as anticipated.

Task 4 – Workshop and research to be conducted at the ASLC.

A. Objectives: 1) to develop a plan through a workshop for the capture and holding of juvenile Steller sea lions for short periods of time; and 2) facilitate a RFP process to promote collaboration with scientists outside of ASLC.

B. Progress:

1. The final report is being edited and revised for use in establishing a program to capture and hold juvenile Steller sea lions.

2. The following projects were approved for funding:

2.1 Bioenergetic Studies of Captive Steller Sea Lions ($11,300). Dr. Andrew Trites and Dr. David Rosen, University of British Columbia. Changes in standard metabolic rate in relation to changes in food intake, activity, body mass and composition, and blood hormone levels will be examined. Research and development for this program began at UBC last fall.

2.2 Relevant Indicators of Welfare of Steller Sea Lion Reproductive Rookery: The regime of mothers' attendance on the shore during reproductive period and the regime of mother-pup contacts ($26,500). Dr. Mikhail Goltsman and Dr. Elena Krutchenkova, Lomonosov Moscow State University. To check if, in the given rookery, there are any deviations in the regime of female presence on the shore and their contact with pups, and to prepare a basis for long term comparative monitoring over the condition of sea lion rookeries. This project began spring 2001 and materials processing for year 1 should be concluded by April 2002 as scheduled.

2.3 The Impact of Swimming Cost Manipulations on the Dive Behavior of Captive Steller Sea Lions During Simulated Foraging Dives ($33,795). Dr. Markus Horning and Ms. Leslie Cornick, Texas A&M University. To test the hypothesis, based on optimal foraging theory, that an increase in the energetic cost of locomotion of a foraging sea lion with a constant relative prey accessibility should produce comparable changes in dive behavior as a

reduction in the individual sea lion's relative prey accessibility without an increase in swimming cost. This project began in the spring and concluded mid summer.

2.4 Heat Flux Measurements on Swimming, Captive Steller Sea Lions to Assess Thermoregulatory Costs: A feasibility study ($24,849). Dr. Markus Horning and Ms. Kate Willis, Texas A&M University. To test the suitability of animal-borne heat flux sensors for the assessment of cumulative thermoregulatory costs in swimming Steller sea lions. This project began in the spring and concluded mid summer.

C. 1) No other problems have been encountered or changes made to the original schedule.

2) Delays on the reconstruction of major habitat areas were managed. No other problems have been encountered or changes made to the original schedule.